Flowing Tensions: Water Disputes and Regional Stability in Central Asia

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Abstract— **Sharing a history of strong cultural, economic and political bonds, the newly established Central Asian states began operating in 1991 with the dissolution of the Soviet Union. However, these states are among the regions with the most water issues, they have brought new problems and disputes in the region along with independence. Starting from the 1990s, the first issue of contention on the regional agenda emerged, affecting the other states after the dissolution of the USSR, and these were water issues. The independent states of Central Asia have to build an alternative order and system on the resources inherited from the Soviet Union, which have been functioning according to a centralized plan for the last 70 years. This paper will analyze how, by 1991, disputes shifted from military conflicts to economic conflicts in the control of water and energy resources. Water resources in the region have a lot of (geo) political functions such as the political independence and stability of the new states, economic development, and regional cooperation in the short or medium-term that can be established by common interests, and with win-win solutions. This paper will highlight that Central Asia has been emphasizing the urgent need to address water-related issues before tackling the numerous problems faced by the region shortly after the disintegration of the Soviet Union.**

Index Terms— **Central Asia, Water dispute, Geopolitics, Regional stability**

I. HISTORICAL CONTEXT

Disputes over water resources became significant in Central Asia in the 1980s. With the collapse of the Soviet Union, conflicts over water resources were expected to increase as water infrastructure developed during the Soviet period required future adjustments (Guo et al., 2016). Before the independence of Central Asian republics, disputes between Armenia and Azerbaijan in 1988 became the igniter for ethnic conflicts in the region, capturing the international community's attention. By 1991, disputes shifted from military conflicts to economic conflicts in the control of water and energy resources. Both the Armenians and Azerbaijanians depended on the ground and surface water resources of the Kura River and its tributaries. The upstream country Armenia's Clara-Karabakh conflict started in 1988. After the collapse of the Soviet Union, this conflict spread to six countries that originally belonged to the Soviet Union, and disputes over the appropriation of the transboundary rivers in Central Asia became quite common.

The historical background clarifies the reason for the water conflicts and armament in the region. Since the 1920s, riparian republics, like Uzbekistan, Tajikistan, Turkmenistan, and Kyrgyzstan, completely ignored the interests of the upstream republics like Kazakhstan and later, Ukraine. Lack of pertinent legislation and the absence of specific procedures caused repeated disputes and occasional deepening of the conflicts. However, during the Soviet period, the conflict did not come to the brink of international arbitration due to Russia's rather disparate application of the international policies of "permissive action" and "pre-emptive strike" (Malsay, M. 2016). Nevertheless, during several conflicts in the early twentieth century, such as the Amu Darya issues from 1910 to 1912 and the Syr Darya problem in 1941-1942, a number of armed confrontations eventually occurred.

II. GEOPOLITICAL SIGNIFICANCE OF WATER RESOURCES

In Central Asia, one of the most volatile regions of the enormous Eurasian continent, the significance of water is more than well-known. Like other related natural resources, water resources in the region have a lot of (geo-)political functions such as the political

independence and stability of the new states, economic development, and regional cooperation in the short or medium-term that can be established by common interests, and with win-win solutions. As a matter of fact, paramount scholars and decision makers in Central Asia have been underlining the urgent necessity for the aforementioned issues related to water being tackled first compared with the numerous problems faced by the region shortly after the disintegration of the Soviet Union.

Agricultural policy, on the continental scale, has always had an aggravating effect on the water disputes which occur between neighbouring states because excessive irrigation from surface waters or unwise and increasing use of mining groundwater by deeper wells to meet additional needs, due to the depletion of surface waters, upstream has always affected the regimes of cross-boundary waters downstream. The use of surface waters in the form of irrigation is attractive because the technique is simple and the investment cost is relatively low. In the absence of investment constraints there is no theoretical maximum yield limit on the arable surface irrigated. This is good for the peasants, who do not need to be so rich, and even for the regimes that do not have a lot of special technical knowledge to operate. A very large part of the water withdrawn by the diversions will eventually end up as vapor in the atmosphere together with the transpired moisture of the plants due to the evapotranspiration. Thus one of the vested interests of the competing countries on the questionary river basin(s) is agriculture, much as for the common domestic water consumption of more populated downstream riparian states.

III. KEY PLAYERS IN CENTRAL ASIA

In greater Central Asia, two main regional water basins are situated, those of Amu Darya and Syr Darya. These river basins, after they leave the outside territories of China, Afghanistan and Iran, are distributed amongst the five republics of the region, namely, Kyrgyzstan, the Tajikistan, Turkmenistan, Uzbekistan and Kazakhstan. In 2010 Uzbekistan and Kazakhstan together with Russia and Turkmenistan formed the Water-Energy consortium. The aim of this union of water resource-rich countries, Kazakhstan and Russia, and water resource deficient ones, Turkmenistan and Uzbekistan, was to tighten their control on the Central Asia's hydrocarbon sector at the expense of the Kyrgyzstan and the Tajikistan.

Among the many disputes, the Farkhad Dam issue between the Uzbekistan and the Tajikistan is relatively noteworthy, since the two republics are the most influential ones in the region for demographic and economic reasons. The downstream state, the Uzbekistan, argues that the Farkhad Dam will reduce the quantity of water and will increase the multiplicity of water salinization in its territories, and also the Tajikistan has inadequate technology to solve the dam in case of a disaster. No agreement has been reached about the Axis-1 of the Roghun HPP dam. And the Tajikistan and the Uzbekistan accuse each other of hindering negotiations. In the case of the Farkhad Dam issue, the others have kept neutral or supported the Uzbek side. Because Kyrgyzstan is dependent on its relationship with the Uzbekistan, The Kyrgyzstan does not want to side with Tajikistan. Moreover, the Kazakhstan fears a domino effect in terms of the increase of water-energy projects in the upstream dams, with the potential to significantly impinge on the state's agriculture and water energy sector.

3.1. Kazakhstan

Kazakhstan declared its independence on 16 December 1991 from the Soviet Union. Encouraged by internal and external factors, the central government lost its previous potential control over regions during the disintegration process. The rapid turnover of local administrators has played a major role in the devolution of power to regional political leaders. Kazakhstan's four water rich regions (Kyzylorda, South Kazakhstan, North Kazakhstan and Atyrau), which are all located adjacent to the Chinese or Russian border, play significant roles in water uses and management (Balamir Coskun, 2013). With the exception of Atyrau, these four regions have transboundary rivers. These structural similarities present conditions suitable for cooperation and conflicts. The Aral Sea disaster has given transboundary water resources an added dimension apart from merely cooperation and conflict. Since water resource management is mainly an agricultural issue, larger and fertile areas have higher social and economic motivation for water depletion. Such competitive consumption of water would have a high potential for water disputes, as in the case of agriculture which is the main sector in Kazakhstan besides mining. The ministerial system in Kazakhstan

is more concentrated on local water issues. The Ministry of Agriculture and Coal Industry is generally concerned with accordance to the Ministry of Water Resources, and the former ministry has fifty times more staff. In this sense, the Ministry of Water Resources is more likely to threats towards neighbors on transboundary water issues. Kazakhstan talks about all rivers as national property except the Syr Darya; the agreement concerning the joint use of the water-energy resources of the Naryn-Syr Darya basin was signed on the 2nd of August, 1996 between the prime ministers of the Kyrgyz Republic, Kazakhstan and Uzbekistan. The operation of all hydro power plants in the Naryn cascade which lies in the territory of the Kyrgyz Republic to the Benken hydro power plant on the Kyrgyz-Kazakh section of the main Syr Darya river is defined by this agreement for the period until the 31st of December, 2010. The water reserves of the Toktogul water reservoir must not fall below dangerous level of 8.94 billion m3 from 1 to 31 May, and from 1 to 15 August, and from 1 to 31 October every year for the period of the agreement.

3.2. Uzbekistan

Uzbekistan, as the largest and most populous and the most upstream state in Central Asia, is struggling to emerge within this Soviet inheritance, which is an obvious disadvantage concerning water issues, with a population of 30 million. Uzbekistan poses a threat to the fragile water systems of the Amu Darya and the Syr Darya feeds by building the world's largest water-consuming crop production based on cotton. Uzbeks use almost half of the agricultural land irrigated land in Central Asia. The Uzbek government, which renounces its Soviet inheritance and carries its privatization policies to the fields, continues these attitudes in water resources. Building channels for irrigating crops that require great effort, funding, and labour, the country prefers to expropriate water tenders on the fertilization done in the Soviet period. Because the use of chemical fertilizers and the construction of cotton factories require water resources, the water-resources exits in the country are offered for tenders. When considering this approach, it is seen that the Uzbeks have more of a tendency to fight in water issues.

The Aral Sea, once the fourth largest lake in the world, has lost over 60% of its basin area and, as a result of an 85% decline in water volume, has been split into the northern and southern bijunctive lobes. Up to 44,000 km of the exposed seabed around the receding shoreline has been covered with rich black chemical contaminated dust, containing poisonous residues of DDT, toxaphene, and heptachlor. The shrinkage of the water body has greatly intensified salinity problems in the immediate vicinity of the Sea. The consequences of the falling water level and subsequent salinization, including the loss of wetlands, environmental pollution, and climate change, have negatively impacted on local flora and fauna.

Only 10% of the Irdinmanche-Farhad-Naryn River water has reached the Aral Sea in the last 40 years due to massive Soviet irrigation projects. All riparian's want to construct dams for industrial, farming, and political purposes. Uzbekistan, the most populous and agriculturally advanced republic, blocked both the Amu Darya off completely in 1980. The demise of the one-time flagship project of the Soviet Union, linked its capital plant Bishkek to its southern agrarian republic of Kyrgyzstan (Wang, Z. 2022). This has entailed the nurturing of long-term bitterness and envy towards Tashkent. Since the late 1980s, Uzbekistan has strongly supported the demands of the republics for a heightened voice in the everyday evaluation and operation of the vast water project complex that they perceive to be having a disastrous effect on downstream agriculture. This is so sensitive an issue to Tashkent that it eliminated the two most outspoken Uzbekistan water resource officials in the mid-1990s.

3.3. Kyrgyzstan

Since its independence, Kyrgyzstan was looking for investment opportunities and support to take control over its resources generating electricity. Once it happened with the construction of Toktogul Hydropower Plant and its water reservoir in Karakalpaks territory, a cascade of hydroelectric power plants was planned and constructed in the Naryn and Talas Rivers upstream. The energy sector in Kyrgyzstan is composed of different, although closely related aspects, such as the domestic generation and consumption, the reliance of import of primary and secondary energy sources, the increased number of new actors of the energy market and the delicate balance of water/irrigation and energy.

However, the circumstance has drastically changed and as does Kyrgyzstan's water and land resources or territory and border status. Kazakhstan's present claim

is that the Naryn-Vakhsh hydropower projects would substantially transform the regional water management and consumption. Indeed, the Naryn River and the Toktogul reservoir are almost the only significant resources for the agriculture and for the Syr Darya in general. Despite this, there has been few publications on water issues between Kyrgyzstan or Central Asia more generally and its neighbours. Significant fraternal support would be rendered by Uzbekistan to the Talas opposition.

As a result of these and other factors during negotiations Uzbekistan upfront collapsed dozens of problematic construction or trade projects with the Kyrgyz side. Authorities keep retaining control and voiding policy initiatives in a very small and thin public sphere environment. Mainstream academic research and opinions are monolithic and do not generally take into consideration, are unable to measure or conduct in depth research on informal mechanisms, networks and practices. Paradoxically, created to improve the situation, do not provide for any autonomy but instead help preserve old patterns of dependence. Informal political practices and attitudes are pervasive and influence decisions at local levels and also in political and economic relations among state governments or with agents of outside countries.

3.4. Tajikistan

Tajikistan (and Kyrgyzstan) are the main receivers of around 70% of the annual flow of the Amudarya and Syrdarya. Total surface water is almost 99% in Tajikistan and its hydropower potential is about half of the resources of all CIS countries with the territories a little more than the territory of Kazakhstan and 70% more than the territory of Turkmenistan (Huang, F. et al., 2015). Tajikistani President Emomali Rahmon foreseeing independence even in the Soviet times signed in mid-90s a building of Rogun dam agreement with Russian alliance of Central-Asia. This memorandum was presented by Tajikistan as agreement on generating 3 billions of kilowatt voltage electric energy for export in exchange of domestically not produced electricity and oil, but only for Russian company and it was not mentioned anything about free market purchases. The agreement was not ratified by Russian State Duma and therefore never entered into force, but despite this, Tajikistan has continued preparations for building of Rogun hydroelectric power station (HEPS). On December of 2010, Tajikistan announced construction of the Tajikistan Cross-border Dam in Panji Poyon River. The dam is to be built in the Tajikistani part of the river that is the border between Tajikistan and Afghanistan. As a majority of the Tajikistani power plants and irrigation facilities are in Panji-Poyon Basin, the dam can create obstacles for the Afghan-Tajikistani access to the international water. Tajikistan signed the agreement on dwelling of two gas purification in the territory of the country to provide agreement for extension of the Russian military presence until 2042. AQSH have mentioned that these daemon possessed by Russia military base the Russian military base is in any need for the salvation of affairs in case they'll find and treat in potential threats, Rogoun environmental threats and agreement between Tajikistan and Russia about dispersion of waste from Rogoun high altitude, are interconnected with quota on the exploration of the natural sources in the Central Asia, according with this agreement they've signed on April of 2010 Russia also has receive 75% of the profit from oil and gas production, transportation and selling of the raw petroleum that creates an obstacle for the possibility of buying better price for the Central Asian neighbours.

3.5. Turkmenistan

Taking a neutral stance on the matter, considering all the five countries involved including Afghanistan and including environmental factors, the water rights of each country are as follows: Kazakhstan is entitled to 66 cubic kilometers of water; Kyrgyzstan is entitled to 0 cubic kilometers of water; Tajikistan is entitled to 15 cubic kilometers of water; Turkmenistan is entitled to 30 cubic kilometers of water; and Uzbekistan is entitled to 60 cubic kilometers of water (Guo et al., 2016). There is much debate in the West today over who has allocation preference, with some arguing that up-river countries should receive preference because they feed the Aral Sea. This, however, is refuted by the ICO, which states that all river basin resources must be divided fairly and justly (Balamir Coskun, 2013). While it may be true that Kazakhstan, Turkmenistan, and Uzbekistan have lost a great deal of water to the Aral Sea as a result of Soviet agricultural policy, it is more important that individual countries have rights to water resources, not an arbitrarily defined legal entity. However, taking all five primary factors into consideration, using the hydro-hegemon method developed by the ICO, when upstream, Kazakhstan is

entitled to its full 66 cubic kilometers. Russia and China are both downstream, so their water claims will be disregarded. The same is true for Afghanistan when downstream. Any remaining fresh water that Kyrgyzstan and Tajikistan cannot or do not want to use for hydroelectric purposes must be allowed to flow unhindered into these other downstream countries.

IV. MAJOR RIVERS AND WATER BODIES

Geographic background of Central Asia and main rivers and water bodies: The geographic scope of Central Asia in the narrow sense includes Kazakhstan, Kyrghyzstan, Tajikistan, Turkmenistan, and Uzbekistan. In the broad sense, it also includes Afghanistan which lies in the far south of Central Asia (Guo et al., 2016). Central Asia is an ancient land of Eurasian dry temperate zone, with an average altitude of 600 meters. 80% of the region is constituted by the Turan plains and Central Asia hills. To the northeast of the region lie Manchuria high mountains and the interior of Central Asia is covered by the Pamir-Tianshan mountain range. Rivers of the region flow into four separate river basins: the Aral, the Caspian, the Balikun Lake, and the Selimu Lake. The region is landlocked and the distance to the ocean is very large. There are seven main rivers in Central Asia, named Amu Darya, Syr Darya, Ili River, Kara Tal River, Emin River, Talas River and Chu River, and four minor transboundary rivers named Ural River, Murgab River, Tedzhen River and Irtysh River. Among these rivers, the longest and the flow rate is the largest river is Amu Darya. Kara Tal River is a river that originated and flows exclusively through Kyrgyzstan. Emin River, Chu River and Talas River are three rivers that originated from the same basin of Kyrgyzstan. Emin River is a tributary of Talas River which goes to Kazakhstan side. Chu River originates south of Chu Valley. Ecologically, there are two marshes and the Caspian Sea, which is the largest lake in the world. Furthermore, it is connected to the Black Sea and the world oceans. Sunset Forest is north of the Aral Sea and Prespa Lake is located in the basin of the Bolikun. Also, there are some other smaller lakes, including Issyk-Kul, Son-Kul, and Balikun. Some endorheic basins, such as the Tarim River basin, are completely isolated from the outside world.

4.1. Amu Darya

Amu Darya River, one of the two main sources of the Aral Sea, is a typical inland river in Central Asia, with a length of 2540 km. Since the 1960s, a large amount of runoff from the Amu Darya River has been used for agricultural irrigation, reducing inflow to the Aral Sea (Wang et al., 2022). The ecosystem in arid areas is extremely sensitive to the change of water resources (Balamir Coskun, 2013). In the middle and lower reaches of the Amu Darya River Basin (ADB), large-scale land expansion and extensive water resources utilization have led to the deterioration of the ecological environment. Water disputes have arisen in the trans-boundary rivers of adjacent countries, and the ADB water management problem is extremely complex.

To alleviate the water resources shortage, these complex transboundary rivers must be managed in a coordinated manner. Since the transboundary rivers cross sovereign territories, the lack of trust in coordinated management led to a decrease in cooperation and an increase in conflicts. In 1991, the Soviet Union dissolved, and the five Central Asian countries of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan became independent. After the Soviet era, a similar centralized structure and a joint management institutional regime for the water resources have persisted for 5 years. Since Central Asia is characterized by an arid climate, the seasonal flow of rivers is greatly different, with the inflow of water largely dependent on regional snow and glacier melt. Given the economic value, in Central Asia, where water scarcity and competition are acute, water has become a part of high politics and the possibility of water-related conflicts has been increasing.

4.2. Syr Darya

Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan are republics which gained their independence from the Soviet Union when it collapsed in 1991. The republics are member states of the Economic Cooperation Organization (ECO), an intergovernmental organization which was formed in 1985 with the aim of improving the living standards and economic conditions in the member states. Given that ECO has been active in fields of water supply, irrigation, energy, and agriculture, this organization might be considered as an institution which should tackle water disputes that occurred between Kyrgyzstan and Uzbekistan, and consequently

between all Syr Darya basin countries from the beginning of 2000. Therefore, the study of this conflict has implications for better understanding of potential disputes in Middle Eastern regions, which are water-scarce areas.

River Syr Darya and its feeder Naryn and Karadarya Rivers have substantial water resources for five republics in Central Asia, including Kazakhstan in the north, and Kyrgyzstan and Tajikistan in the east in addition to southern republics of Tajikistan and Uzbekistan. Difficulty in sharing water resources of the Syr Darya Basin emerges largely from the opposite geographic situation of the states on the river banks. Downstream countries, Uzbekistan and Kazakhstan, tend to utilize water more efficiently and rather than upstream countries, Tajikistan and Kyrgyzstan, grow crops with higher commercial values. However, the drying out of the Aral Sea led to the advancement of desertification particularly in Uzbekistan. One of the effective tools to combat desertification is forestation in which to maintain sizable water gap in the river in order to divert excess water to accumulating ponds for a longer period. Handling of such necessity gradually evolves promotional request for the construction of hydroelectric dam on the upstream. At the end of 1996, Kyrgyzstan started the construction of Kambarata hydropower plants in Naryn and subsequently in 1999, Tajikistan launched the construction of Rogan hydropower stations in upper peak Karadarya over the objection of Uzbekistan. These stations can have an annual capacity of 2.4 billion cubic meters to store water. Responses of the Uzbek government were two-folded. First, Tashkent made effort to prevent the establishment of multi-lateral cooperation between republics and consequently they negotiated directly with Kyrgyz government to construct small hydro plants for border and enclave Kyrgyz villages in exchange for the stop of the construction of big ones. However, given the status of fledgling democracy in Kyrgyzstan and governmental revenue heavily depend on energy, hydro-power dealing could have been fruitless. Thus, secondly, regarding asymmetry of power, Tashkent exerted pressure on the regularities losing Russian military protection to bring up the issue at the international forums with the authority of the former Soviet Union. This triggered the Russian fear about the region's stability in the presence of internal conflicts and particularly bold insurgencies. Given that, Moscow supported the suspending the works at these construction sites by 2004 and 2005. The establishment of the Joint Syr Darya Water Commission by the UN was ineffective and it was catchword for the foolishness for Tajikistan and Kyrgyzstan given the advantage of Uzbekistan in the regional power scheme.

4.3. Ili River

The Ili River basin is located on the northwest border of China and the southeast border of Kazakhstan, enclosed by the Altai Mountains, the Tianshan Mountains, and the Junggar Basin (Xu et al., 2022). The water transported by the Ili River belongs to the Arctic Ocean and the Pacific Ocean, falling within China and Kazakhstan's water boundaries. The Ili River is a critical transboundary river between China and Kazakhstan, located in the Ili-Balkhash basin. The Ili River originates from the Chinese side of the Tavalik Mountains, flowing northwest across China and Kazakhstan, and finally discharging into Lake Balkhash. There are four tributaries of the Ili River. The Kashi River and Kura River are located in China. The Charyn and Karatal River systems are located in Kazakhstan. The Chuy River, one of the Ili's tributaries, becomes the Lepsi River after entering Kazakhstan, flowing along the border and joining the Ili River.

The Ili River has a temperate continental climate and suffers from drought every year with little precipitation in winter. With glaciers melting and water evaporation increasing, the Ili River discharges into Lake Balkhash with low water levels. The Ili River on the Chinese side continues to provide water to Lake Balkhash owing to the obligation, even in drought years, which has caused the downstream Lake Balkhash shore in Kazakhstan to retreat by a large margin. Tensions between China and Kazakhstan have arisen since the 1990s due to battles over water use and water pollution in the Ili River. The issue of the distribution of the Ili River's water sharing rights has not emerged until very late.

The Ili River basin covers an area of 151.2 × 103 km2, with 94.5 × 103 km2 located in Kazakhstan and 56.7 × 103 km2 located in Xinjiang, China. The total volume of surface runoff of the Ili River basin is 228.7 × 108 m3, with 170.4 × 108 m3 originating from Xinjiang and 58.3 × 108 m3 originating from Kazakhstan. The Ili River basin's total water consumption capacity reaches 133 × 108 m3, and the

industrial drainage pollutants in the Ili River basin have reached moderately polluted levels. The annual net flow of the Ili River basin is 130 × 108 m3 per year. Two northwestern provinces of China are close to water shortages, which routinely increases water-saving needs.

V. CAUSES OF WATER DISPUTES

1. Causes of Disputes Central Asia is a planet authentically unique among the geographical and geopolitical areas in the globe where five states allegedly united by the water system are immediately located. Contrary to the potential of such uniting sources to enhance collaborative or even integrative relationships, this planet compels states to describe different, and often strictly conflicting, community regulations on the same problem. The root of the water difficulty arises from the geographical and hydrological conditions of the area that form more intricate political, economic, and social difficulties.

2. Disputes With the breakdown of the Soviet Union and the escalation of liberalism in Central Asia, the complex social, political, and financial model in which the Aral Sea was born fell apart. The nowadays challenging water arguments are the heir of the treaty-political conflicts between republics over the quotation and gratitude of water from the 1960s and 1970s, with agreed-upon political, financial, and water association planned by 'high politics' from Moscow part of the game. The disputes impose fresh disagreements in much different societal and financial environments. Throughout this stage, analysts attend to the construction of distinct community perception of the consequences of the sea, and the valuation of the sea's loads and benefits by different societal members (Guo et al., 2016).

5.1. Historical Agreements and Treaties

Historical treaties and agreements conducted by Central Asian States and Soviet Union concerning water are significant for the prevalence of water law principles. Nowadays, the adopted agreements are still reputable among the water authorities of the Central Asian States in various instances. Similarly, recently emerging treaties in other regions may be a good pattern for the Central Asian Basin States. In this context, various principles, which are included in these treaties and agreements, may serve as an example for the possible water regime formation between the Central Asian Basin States (Balamir Coskun, 2013). Six years after 1991, USSR and two of the Central Asian Republics, Kazakstan and Kyrgyzstan, signed a treaty concerning the use and protection of water resources. As each of these agreements and treaties generated specific principles, norms, and rules regulating their freshwater resources, overall, a precedent for norms and confidence enabling the broader agreement were set. Later, the republics became independent and more radical separation was promoted, ensuring the growth independently of each entity's political and socio-economic foundation. Finally, five new virtually admitted but internationally progressed states of Central Asia signed the first agreement among each other concerning directly water. The Alma-Atinskyye Doklady notionally implied tensions and disputes that would be regulated between the republics following a year of negotiations. As a consequence, the basin republics were to work with mutual cooperation for the adequate usage of the water resources under agreed conditions beneficial to each country.

5.2. Post-Soviet Transition

Since the collapse of the Soviet Union in 1991 and the emergence of five newly independent states in Central Asia, water management in the region has become a source of tension and potential conflict. Long-standing practices and agreements ceased to function, new national borders were established, and the interests of the newly independent states became a priority. Central Asia has faced unilateral actions, blockages, threats, and demands concerning water, which have resulted in several conflicts. Thus, the water tensions in Central Asia have become the most critical issue in their international relations. The situation is further complicated by a general lack of trust among states concerning the formation of an adequate policy, the feeling of relative deprivation, and equity over water allocation, as well as the necessity of political and economic transition. On the other hand, disputes on water management have also become an element of coalitions and balancing. This topic is more serious than any other trans-boundary issue in Central Asia and has culminated in the spectre of war from time to time.

Since Central Asian states were forced to develop a venue for water management due to their urgent need for principles, norms, rules, and decision-making procedures regulating water allocation, the question to be addressed is as follows: To what extent has the water regime in Central Asia contributed to water allocation and prevented more disputes? To tackle this, the next section will discuss the framework, defining the principal norms, rules, and decision-making procedures regulating water allocation, as well as the formation of the water discourse in the region, and the third section will address the efficiency of the water regime to date.

5.3. Climate Change Impact

Over about the last twenty years increasing regional conflicts about the allocation of water from transboundary rivers relevant to the five Central Asian countries Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan have been reported. In particular the controversial dam constructions in Tajikistan and Kyrgyzstan and the effects thereon to the livelihood of the people living directly downstream have led to re-structuring the everyday political relations within the region, such as the energy relations between Tajikistan and Uzbekistan or the water limitation of agricultural products import from Kyrgyzstan. Due to rapid depletion of a larger share of the water resources widespread droughts are to be expected, which will have dramatic consequences on the highly water-dependent economies in the currently rather intensively used agricultural lands that stretch all over the different border regions. The further aim is to evaluate to which extent the perceptions of the affected population fit to the indicators for risk elicitation using empirical data from two case study sites in Tajikistan. Prescriptive measures of local authorities and farm leaders are derived in order to mitigate the perceived threats concerning the availability of water. In an attempt to find an answer on the second research question the chapter is structured as follows: first the political conditions relating to our topic are briefly explained. Then we attempt to give a global overview on related transformations of water regimes and the societies they are affecting (Malsy, M. 2016). This shall prepare the stage for the description of changes in the water regime of Central Asia and the possible underlying causes. The method section introduces the indicators of risk elicitation and provides detailed information on the sampling strategy and data collection. Empirical results are presented and discussed thereafter. In the end the implications of this study to (local) water governance are evaluated and first prescriptive measures derived from the findings are presented.

VI. ECONOMIC IMPLICATIONS OF WATER SCARCITY

In Central Asia, water has become a part of high politics due to its scarcity and competitive usage. In the region, it is mainly used for the irrigation of agricultural land and for energy production. Arid-climate area of Central Asia and the lack of hydrotechnical development spurred the interest of the countries for water. In Central Asia, the problems of water distribution have a long historical background and conflicts have flared during ancient times (Guo et al., 2016). The problems of increasing demand and the declining supplies have led to increasing competition for water. Tensions have focused especially on the two main rivers of the region, the Syr Darya and the Amu Darya, and on the irrigation systems fed by them. The Amu Darya and its tributaries form part of the border between the Central Asian states and Afghanistan and Pakistan. These relations have also rationalized some of the national security connotations of water in the regional politics.

There are two main reasons why the regional states consider the problem to be a “zero-sum game”. First of all, they have developed incompatible visions for the use of the water. Secondly, no state is able - or willing - to bear the environmental consequences of its preferred water use strategy. Cotton production has become one of the most valuable products for regional economies, particularly for Turkmenistan and Uzbekistan. Cotton production constitutes the most significant agricultural activity, from an economic point of view, in these two countries. In 1997, its production constituted 41% of the GDP of Turkmenistan and 35-40% of that of Uzbekistan. Cotton production also employs 44% of the workforce of Turkmenistan and almost 76% of Uzbekistan’s revenues come from its cotton exports. Turkmenistan and Uzbekistan’s cotton sectors are also reliant on external markets. Additional pressure is put on the sector due to the inefficiencies and lack of economic sustainability. This arbitrary management is not

confined to the cotton sectors. On the tributaries of two main rivers (Syr Darya and Amu Darya), and particularly on the Naryn River, there have been attempts to build new hydroelectric and irrigation projects. On July 13, 1968, the Toktogul Dam and Reservoir was put into operation on the Naryn River by the Soviet government. The waters of the Naryn River were used by upstream republics, especially by Kyrgyzstan, to make the Toktogul Dam operate in favor of upstream agricultural and hydropower production. This has been leading downstream Uzbekistan and Kazakhstan to complain about the allocation of water resources. Since the independence of the countries in 1991, the water, along with many other issues, has been transformed into a subject of competition and frictions.

VII. SOCIO-POLITICAL CONSEQUENCES

Since independence, Central Asian states' relations have been semi-determined by a set of geopolitical contradictions, one of which is water. The water issue is of outmost importance for a region where large parts of the territory are composed of deserts and semi-deserts. At stake are the Amu Darya and Syr Darya rivers that play a key role in the local, economic, ecological, social and demographic balance of a region with two hydropower-emphasis states (Balamir Coskun, 2013). Downstream, Uzbekistan and Turkmenistan are victims of the environmental, sanitary, and social consequences of the two gigantic Soviet hydro agricultural projects: while downstream, Kirghizia and Tajikistan are economically weakened by Land Reform projects pouring water away from the main agricultural lands. Overall, irrigation consumes too much water (over 90% of which is lost in the irrigated areas) and the depression of 1980s has disrupted the network that still have to recover. Unless sustainable development is implemented, the region endangers its children with desertification, water shortages, and social conflicts. In 1992, Turkmenistan president declared that water had become "a national security issue"; water disputes in the region can usually be considered as partially independent from water per se as they also represent, inter alia, a mean to assert Meliorative power in front of remote Meliorative power, and to exacerbate amongst the downstream Melioration users, or to question the internal legitimation of the ruling elites by externalizing (or ritualizing) an efficient social tension and, therefore, water is both stake and tool.

VIII. CONFLICT AND COOPERATION DYNAMICS

After the collapse of the Soviet Union, a new geopolitical reality emerged in Central Asia, which led to the formation of independent countries with unclear boundaries. As a legacy of the Soviet Union, the water distribution system did not adhere to the geographical division of the Amu Darya and Syr Darya Rivers; rather, each cotton-growing region utilized large quantities of water relatively close to cotton fields or for direct irrigation. The ferghana valley, a very problematic area, was divided into three administrative regions, each belonging to a different Soviet republic. Once Uzbekistan, Kyrgyzstan and Tajikistan became independent, the countries had to reassess their resources in order to provide water and electricity for their growing populations and their industrial sectors.

This situation eventually led to disputes among the five former Soviet republics over the distribution of the waters of the Amu Darya and Syr Darya Rivers, thereby making the Aral Sea one of the most important sources of conflict in the region. The unsettled water and land disputes inherited from the Soviet Union continue to shape the relationship between them. Water related issues are crucial for Central Asian security due to the main geopolitical position of water basins. As the most recent natural focus of Kazakhstan-Kyrgyzstan, Kazakhstan-Tajikistan, Kyrgyzstan-Tajikistan, and Turkmenistan-Uzbekistan disputes, these local contests could facilitate a comprehensive analysis of potential conflicts in the Central Asia water domain (Guo et al., 2016).

For analytical purposes, these cases will be evaluated in terms of the history of the conflicts, relative power capacities of actors involved in the domain, the degree of power symmetry between states, relative dependence on water resources and role of outside powers, mediation and cooperation efforts.

8.1. Case Studies of Conflicts

In Central Asia, the possibility of conflicts deriving from the distribution of trans-boundary waters is a major concern (Balamir Coskun, 2013). Since the dissolution of the Soviet Union, water use has become a matter of disputes among the new independent states.

The impacts of political border changes in the early 1990s were relatively small in Central Asia compared with other newly independent countries. The region was constituted of five Socialist Republics (Turkmen, Uzbek, Kyrgyz, Tajik, and Kazak) under the Soviet regime. Then, in 1991, these five became independent. However, it was believed that with the disintegration of the USSR the geographical circumstances would lead one of the Central Asian countries to a situation of becoming "water poor" and that the potential for regional water wars would be aggravated. The disintegration of the Soviet Republic raised a number of critical questions. The most crucial among these questions was that of the future of the operations of the great reservoirs in the upstream of the Amu Darya and Syr Darya rivers. What would be the mode of distribution of the water of these rivers? The two rivers, Amu Darya and Syr Darya, which gave to Central Asia Nuristan (the crescent land known to ancient Greeks as "Sogdiana" and the current Ferghana Valley) left it in thirst. It is the water of the two great river flows, and Registan (the barren land) did not wait long to conquer these oases. The rivers in the North were stopped by the desert before they could reach Aral, and those in the East of Central Asia ended up in failure even being able to reach the desert. The water needs of the desert itself were also satisfied by drawing upon these resources. Right to the shape of a potential Boreal Sea was the Amu Darya - called the Oksus by the ancient Greeks - disappeared around the beginning of the X century. The first campaign of the Mongol King Genghis Khan and his grandson Djengis Khan was at Khorezm. Later on, in the second campaigns, Amu Darya, which is the Gihon of the Holy Book, was deflected and the Kaf (Aral) sea also withered. According to the Syr Darya Basin Irrigation Development Scheme Prepared in 1964 by the Minister of Water Economy, 41 million hectares irrigation potential of the Soviet Union's XXVI region was calculated.

8.2. Examples of Successful Cooperation

In the geopolitical dynamics of Central Asia, water-resource sharing has been the prominent source of conflict between the littoral states of the Amu Darya and Syr Darya rivers. The two leading water management systems in Central Asia, the Proriv and Interstate Coordination Commission (ICC), were Soviet legacies rendered ineffective with the demise of the Union in 1991. As the systems malfunctioned, Central Asia was hit by what became known as the 'water and energy crisis,' the result of a severe decrease in energy/fertiliser supply from the Kazakh coal mines and the Russian gas fields, and a drop in water supplies due to the termination of the energy inputs for the irrigation systems. The net effect was a 25-30% decrease in the irrigation produce of cotton and rice, with drastic economic and social implications (Guo et al., 2016). Since then, the region has been widely portrayed as a potential trouble spot where rivalry between the states over the water resources is inevitable, and perhaps imminent. Such pessimist views have been reflexing of the Siberian Water Pact wherein the water resources were shared according to the criteria of energy potential of each republic and respect to the historical rights and exploitation patterns of the upper republics.

However, there have been positive trends in trilateral relations in recent years that bode well for enhanced regional cooperation. For example, there have been a number of meetings between the three countries and their leaders to discuss water utilization and dam construction in the source regions. Kazakh President Nazarbayev and Uzbek President Karimov have been instrumental in improving relations between their countries, especially on issues related to water resources. The use of water in Kazakhstan has been a contentious issue, and Kazakhstan has demanded that Uzbekistan abandon irrigation of land seized from Kazakh SSR during Soviet times. However, there are also fundamental disputes between these two downstream countries. Kazakhstan wants to dissociate itself from the network of Soviet-era agreements, while Uzbekistan does not approve. The Uzbek government believes that Soviet-era water-sharing writs need to be renegotiated under new conditions. Kumtor, the Kyrgyz-Tajik initiative for several years, a recent thaw in relations between the two republics has allowed the project to make progress. This project would not only ease the chronic shortage of water during optimal and critical periods in upstream Kyrgyzstan, but also reduce the extreme seasonal fluctuation in water temperature in rivers (Xu, X., et al. 2022).

IX. INTERNATIONAL INVOLVEMENT AND MEDIATION

In the early 1990s, a complex legal-institutional irrigation systems network was reformed with restrictions lifted and nationally non-exclusively utilized resources shared between the five Central Asian states, thereby creating a controversial situation of international resource interdependence. By not engendering a vision of integrated economy, the development of these states therefore led to separation. However, by these states foreswearing development in the exploration and use of their respective overabundant resources, they are looking forward to non-political bilateral and multinational cooperation. Both such developments and regional results very substantially depend on a final international settlement of the water issue in the Amu Darya and Syr Darya basins.

Taking diverse parameters into consideration, different attempts at interstate settlements, both spontaneous and international, have been made in the conflict between these states over water resources. In fact, spontaneous settlements with high institutional diversity and international involvement fell short of predetermining peaceful conditions. In the meantime, attempts to exert pressure, mediations, and the implementation of international measures have also played negatively in regional perceptions. It is thus essential these measures be based on relevant conventions and recommendations. In doing so, multicasual cooperation seems warranted. For the time being, the effectiveness of international involvement depends on the adequate and consistent arrangement of joint strategies. Taking a gradual approach, pressure management is a priority. The involvement of a multi-expert commission, mediation, and the application of relevant mechanisms are further examples of a comprehensive approach. Finally, political development will not be easily understood by such institutions as the consequences of their decisions in so far as these are based or lead to non-realistic economic forecasts. A more realistic approach would take into account the flexibility about the development level of the states, changes in natural and infrastructural parameters, and calculated future equality.

9.1. Role of the United Nations

The United Nations' involvement in the Tien Shan water disputes, as opposed to its participation in other water-related cases, is very limited. Therefore, this case serves primarily as a framework illustrating how greatly the UN could actually contribute in a dispute over landlocked water resources without legal or technical rules to draw upon. Following Central Asia's independence, five former Soviet countries are formally regarded by the UN as independent and sovereign states, each in equal need of technical, financial and humanitarian assistance in order to make a successful transition to independent economies and to assure peace and well-being in the newly formed states. Economic considerations lend vital importance to the emergence of a complex, co-equal and generally agreed international water allocation regime among the riparian states of the Tien Shan. The needs of the region, the UN's Water Decade potential, and the expected role and functioning of the UN Water Unit are first addressed, and the UN at the outset of the third Millenium and prospects over the period are then discussed briefly. There is a pressing urgency for the elaboration of more advanced mechanisms to avert future or contain ongoing escalation in the competition for common water resources. Given the apparent absence of any kind of water-sharing limits inherited from the Soviet era, expectations in this direction concern an unprecedented formulation of a comprehensive, equitable and unanimously accepted international water resources allocation regime. Thus, the absence of a specific and acquainted set of rules seems to render the regional parties amenable to a search of the rare UN provided solutions and skills, that is to the UN's more traditional methods of dispute settlement related to natural resources.

9.2. Influence of Regional Organizations

Throughout the 1990s and especially in the early 21st century, several international organizations, often in cooperation with one another, have attempted to catalyse the emerging regional management issues. This included the UN and a number of other international organizations, some focused-on water issues more generally, others on regional cooperation, and still others on issues of security and development. Yet despite the convening role of such international organisations and the subsequent establishment of a number of bilateral agreements, much of the

realisation of these regional water crises rests on the degree to which they fit the foreign policy agendas of key superpowers, and hence the hyping of certain events and interests at the cost of others. The intimate linkage between problems of peace and security and disputes over water resources in politically unstable regions is an obvious concern of a number of Central Asian neighbouring states, and thus of other states attempting to insert themselves into the strategic environment of post-Soviet Central Asia. Amidst the continued political instability and conflicts, the basins of the Amu Darya and Syr Darya now contain two de facto new states, as well as several disputed territories, all of which could one day coalesce to form their own internationally recognised territories. At the same time, despite the preoccupation with these new territories and so-called frozen conflicts, the establishment of new political boundaries has never once been voluntarily negotiated between any of the newly independent states in the region (Balamir Coskun, 2013).

X. WATER MANAGEMENT STRATEGIES

Water is very important for all living creatures on Earth. A powerful hydraulic civilization emerged in Central Asia with the operation of irrigation systems on the basis of common river basins like the Fergana and Zeravshan rivers. The fountains and canals from the Amudarya and Syrdarya provided Central Asia, a vast area covering different states situated within large distances, with a convenient living environment. In the past, these rivers and their vast basins witnessed many wars and conflicts, especially with the invasion of foreign conquerors (Zan, C. et al., 2022). The Syrdarya-Ural Front, one of the driest regions, displays the scars of aggression, perfidy, cruelty, the inurement to ferocity, exile, tyranny, and bitter resistance. These historic memories must have produced a collective trauma for the people living on both sides of these rivers which are symbolic of the perpetual flow of life and eternity. At the brink of the third millennium, the stability and peace of these regions have been shaken by new socio-political disorders and environmental pollution.

With a helter-skelter break-up of the Soviet Union, the Central Asian states have been forced to work out the principles, norms, and rules adequate to cope with the task of regulating water allocation relations among them, and with downstream regions like Khaver Darya and Amu darya-Oxin. In 1992, shortly after their independence, the leaders of Kyrgyzstan, Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan signed an agreement in Almaty to coordinate their efforts in managing water resources sustainably and efficiently. An interstate regional water and energy consortium ICWC was established to coordinate and monitor water use, quality, monitoring and assessment, and IRAS to provide a funding mechanism to manage resources. This new water regime between Central Asian states has emerged from ideas and expectations already converging towards the need for the allocation of water resources by dam-managing, transboundary water rules, conformity, and legitimate harmonization to control, manage, and protect the use, development, and protection of watercourses and water management regulations and laws while disregarding anything related to research such as geological, hydrological, and meteorological monitoring. Yet tension between states has arisen lately reflecting serious doubts about a possible descent into difficulties relating to Eurasian water power games and the ability of the actors to avoid large scale water and energy conflicts.

10.1. Transboundary Water Management

In Central Asia, there are several transboundary rivers, such as the Amu Darya and Syr Darya, Chu and Talas, and Irtysh rivers. Compared with internal river basins within one country, countries in the basin must deal with a series of complicated and numerous transnational water conflicts. The Southern Siberia Rivers, such as the Chu and Talas that are neighboring the Central Asian Rivers, and the Ishim, Ural and Tobol that is rolling to the Arctic Ocean have suffered from transboundary problems respectively between Northwest China and Kazakhstan, and between Russia and Kazakhstan. Especially in the Syr Darya and Amu Darya Basins with their branches, comprehensive conflicts of the upstream hydroelectric generation and downstream irrigation water demand among five independent Central Asian countries have taken place continuously, of which the complex disputes on the use of the Toktogul and the Kambarata hydropower stations in the Naryn river in Kirgizia have lasted for more than 50 years since the establishment of the dams (Guo et al., 2016), that five countries have been facing the deterioration of the ecological environment and the decrease of water and land resources, which increases the difficulty of the disputes. The speed and the extent

of the melting of ice will be more intense when the temperature of the earth's surface continues to rise in the future, resulting in an accelerated decrease in the water resources of the Amu Darya and the Syr Darya. In other words, the disputes will not disappear with the advance of the year; rather, they will be more intense and more complicate.

10.2. Sustainable Practices

1. The number of significant water and energy disputes in Central Asia has increased significantly, which has exacerbated the water and energy security crisis in the region. A comprehensive review of the water and energy disputes in Central Asia in the context of sustainable practices is still lacking. Moreover, most research on water and energy disputes in Central Asia focuses on a single case rather than on extensive research. This paper starts with the Aral Sea basin and crosses other river basins in Central Asia to analyze the opportunities, challenges, and sustainable prospects of water and energy disputes (Guo et al., 2016).

2. Tensions over water and energy in Central Asia have been a significant feature of the basin since international boundaries were constructed across the riverways beneath the collapse of the Soviet Union. Growing populations, increased agricultural development and rising energy consumption have developed trade-offs between water resources, diffusion and energy production. Rich Kyrgyzstan (and neighbor Tajikistan) can generate large amounts of energy through their large hydropower potentials, particularly in the winter when they lose run-off for irrigation. However, at the same time, heavily pressure the downstream Uzbekistan, Kazakhstan and Turkmenistan economies, which rely on resource exports and water for agriculture.

XI. FUTURE OUTLOOK AND CHALLENGES

Since regaining their independence, a quarter of a century ago, the five Central Asian republics of the former Soviet Union -Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan -have been engaged in various degrees of water disputes. The most visible transboundary water disputes as of 2000 were the downstream countries versus the upstream countries, and the ongoing irrigation system disputes involving Uzbekistan and another republic. Central Asian countries have established several regional organizations: the Interstate Coordination Water Commission, established in 1992 by the Central Asian countries, to coordinate all water resources issues; the International Fund for Saving the Aral Sea established in 1993; a basin organization established in 1995 by the Aral Sea countries under the framework of IFAS, and the Central Asian cooperating organization established in 2004, exercised in multiple areas including those related to the water problems in the region. However, transboundary water issues still remain unresolved due to their historical background, regardless of certain efforts that have been made within the frameworks of a few organizations. If unresolved, this "water-energy crisis syndrome" will have serious socio-economic and political consequences not only on the Central Asian region but also on the neighbouring countries. Since the breakup of the former Soviet Union, there has been little progress in resolving transboundary water and energy issues in Central Asia. To avoid statements about water allocation volume, reservoir storage volume, and power generation capacity disparities between countries, Central Asian countries were labelled as the upper stream and downstream countries with respect to the natural flow of the river. It is hoped that this will encourage the countries concerned to further enhance mutual understanding and cooperation, with a view to establishing a sustainable and equitable water allocation system and addressing their energy supply-demand challenges. Only a permanent and fair solution can contribute to long-lasting peace and development.

11.1. Potential for Conflict

Transboundary water disputes are becoming an increasing concern in international hydro-politics. This is particularly true in regions where scarce water resources are shared by politically complex groups of people. Central Asia is one of these regions, because of its Soviet legacy, immense mineral, energy, and agricultural resources, and intricate ethnic make-up. Various technical solutions have been proposed to mediate disputes over transboundary waters, with bilateral riparian agreements on the Amudarya and Syrdarya Rivers being the most notable among them (Balamir Coskun, 2013). However, these are rival riparians whose indignation wickedly overshadows any concerns for mutual gains. Consequently, hydro-political considerations need to be integrated into the

scholarly understanding of this region where water sharing agreements are notoriously difficult to achieve.

In the context of dissolving the Soviet Union, the creation of new nation states in Central Asia brings the prospect of struggles for state legitimacy and territorial control. Territorial disputes are not new to Central Asia. Under the Soviets, Moscow deployed a number of measures to control and contain Central Asian nationalisms. Indeed, national borders were drawn in an exclusive security regime. This, in return, fostered local conflict over water, oil, and gas. In addition, following independence, violent ethnic conflicts erupted in many parts of the region. These destructive and bloody conflicts indicate the potential for further war. Furthermore, if state structures continue to weaken or internally collapse escalation to violence becomes very probable. Even otherwise, potential sources of conflict such as water, border demarcations, the lack of energy resources etc., are abundant in the region. Initially, the article describes some of the material problems one would expect to be associated with state weakness and disintegration. Subsequently, a theoretical account of conflict will be presented.

11.2. Opportunities for Collaboration

Concerns about the impact of glacial melt reduction are compounded by expectations of increased regional demand for water. For centuries, the main sources of water for irrigation of food crop cultivation in Central Asia have been the Amu Darya and Syr Darya rivers. However, Uzbekistan and Turkmenistan have invested heavily in permanent irrigation infrastructure, and it appears that these countries may be losing even significant parts of their irrigation potential in the near future. It is predicted that climate change could be a threat to water resources in the Central Asian region. In political terms, one can imagine (or fear) that this might exacerbate already existing tensions between riparian states, such as those between Uzbekistan and Tajikistan, which have been argued over the dams in the upstream states.

However, there may also be other lengths of rivers that have not been considered yet. While the Abay River flows through the desert, the Surkhob or the Wang may become the state of the Republic of Uzbekistan. It is assumed that Uzbekistan could extend water power cooperation with some other riparian states in Central Asia, namely Tajikistan and Kyrgyzstan. In the long term, it is virtually impossible to believe that Central Asia could avoid discussion of water resources. Water is simply needed: irrigation is necessary to feed the population and ensure a minimum level of living conditions. And this is the basic principles of formal international law. In order to comply with the requirement of equitable utilization laid down in the Pacta sunt servanda principle, a state has to consider regional principles and norms (Guo et al., 2016). The fact that only downstream countries have consented to a multilateral agreement is suspect, at best. The other states may have the right to challenge the validity of the agreement on the grounds that the principles of regional cooperation and reasonable development have not been taken into consideration; that these principles were not considered in good faith or that equally valuable alternatives have not been evaluated.

XII. POLICY RECOMMENDATIONS

Water disputes in Central Asia have been widely analysed in terms of their potential for violent conflict since the breakup of the Soviet Union. Although some analysts likened the potential conflicts to those of the Middle East, there are a number of reasons why water conflict in CA is unlikely. One feature that distinguishes the water situation in the Central Asian region is the vast amount of water available. Therefore, the countries in the region are unlike Israel and Jordan, which receive only limited water. In the Central Asian republics (CARs), most years have an above-average flow in the river systems, even during the drought period of the early 1990s. In the transboundary level, from a comparative perspective, the region's water disputes are relatively "young" and have not been chronic. In addition, both Afghanistan and Turkmenistan have been relatively disinterested in attacking the "water question" and for pursuing the "zero-sum" game where one side's winning is equivalent to the other's losing (Balamir Coskun, 2013). There are a number of areas for potential outside influence on water disputes in Central Asia, including cooperative projects aimed at alleviating the current situation, conflict amelioration, or exploitation of the situation to gain geopolitical leverage. Each of the diplomatic players in the region has to some extent used water to further their larger aims in the region. Whilst there has been some level of cooperation at the ministerial level over the river systems, these talks

have generally not yielded much progress. Iran, Turkey and the US have all had bilateral level discussions with CARs regarding rivers which have not led to concrete action. With regards to the Indus agreement, as it functions now, while not a perfect system, it acts as a basic arrangement through a neutral mediator which is a luxury that the Central Asian states do not have. In terms of extra-regional involvement in the Central Asian water disputes by any of the states, whilst it has been ramped up by some actors, this has not greatly changed the balance of power within regional negotiations, nor has it always taken place in ways that further cooperation. Not only are the already contentious water disputes in Central Asian republics (CAR) complicated by the multi-national border-crossing rivers, but they are compounded by the current complex situation of any single state in the region. In many cases hydro-electric station placements favor some riparian countries at the expense of others downstream because of a topographical preference. How do two countries decide where to allow power stations when there is not enough data on what the ramifications for each of the countries will be, and thus there is a security dilemma between two states when neither can give so much information to the other? Uzbekistan fears possible damage to their ancient poorly studied drainage system and hence they are weary of any canal projects. However, Turkmenistan and Kazakhstan are both interested in expanding irrigation while there is not clear evidence as to the economic or environmental capabilities of each state to expand in this realm. There is dispute over possible negative consequences of Turkmenistan expanding into the Sarykamysh.

XIII. CONCLUSION

This policy report provides a chronological description of transboundary water relations between the Central Asian States, presents attempts to manage inter-state water disputes, and elaborates on the hopes and frustrations of policy makers faced with water allocation and management problems. Central Asia is one of several regions in the world that have faced water disputes due to their physical and geographical features. The Aral Sea region is a striking instance of the collapse of a water basin as a result of inefficient use and exploitation for cotton production in the Soviet period, and diversion of water from its two resourceful rivers, the Syrdarya and Amudarya, for irrigating semi-desert zones in Kazakhstan, Kyrgyzstan, Turkmenistan, and Uzbekistan (Chen, X. & Zhao, Y., 2022). A new phase in the water politics of the Aral Sea basin and Amudarya and Syrdarya river basins begun in 1991 with five independent states - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan - emerging from the USSR. This development, in conjunction with water scarcity, belligerent populist politicians, obsolete infrastructure, and institutional immaturity led to the transformation of an already critical situation. With the collapse of the Soviet Union, a process of re-negotiating treaties and provisions regulating water use and distribution had to start urgently.

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